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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/506,622

12/08/2004

Joachim Kiefer

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21005

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09/16/2009

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

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EXAMINER

PEZZUTO, HELEN LEE

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/506,622

Applicant(s)

KIEFER ET AL.

Examiner

Helen L. Pezzuto

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-23, 25, 26, 28-31, 41-50 and 52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-23, 25, 26, 28-31, 41-50 and 52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/3/04, 4/20/09, 8/17/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/17/09 has been entered.

Response to Amendment

Applicant's amendment to claims 20, 50, 52, and the cancellation of claims 51 filed in the response on 8/17/09 is acknowledged. Currently, claims 20-23, 25-26, 28-31 and 41-50, and 52 are pending in this application. In view of applicant's cancellation of claim 51, previous 112 rejection is hereby withdrawn.

Terminal Disclaimer

2. The terminal disclaimer filed on 6/15/09 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of co-pending application 10/506,387 has been reviewed and is accepted. The

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terminal disclaimer has been recorded. Accordingly, previous provisional Double Patenting rejection is hereby withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20-23, 25-26, 28-31, and 41-52 are rejected under 35 U.S.C. 103(a) as being unpatentable Formato et al. (US-469) for the reasons of record.

US 6,248,469 to Formato et al. discloses a solid polymer electrolyte membrane (SPEM) having a porous polymer substrate interpenetrated with an ion-conducting polymer material. Suitable polymer substrates include those containing at least one nitrogen, oxygen or sulfur atom in the recurring units encompassing the polymer expressed in step (a) of the present claims (col. 6, lines 22-50; col. 7, lines 1-29; col. 10, lines 9-18). Prior art preferred ion-conducting material includes at least one of the instant polyvinylsulfonic acid and polyvinylphosphonic acid (col. 7, lines 10-28; col. 14, lines

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31-41). The resultant membrane has ion-conductivity of greater than 0.1 S/cm (col. 12, lines 58-64). One of the prior art embodiments in producing the membrane comprises the step of preparing the substrate polymer and subsequently impregnating the substrate with the chosen ion-conducting monomers, which are then polymerized in situ to form the composite SPEM (col. 8, lines 30-34; col. 15, lines 5-12; col. 17, lines 22-45). US-469 discloses using at least one of the instant vinylsulfonic acid and vinylphosphonic acid monomers within the scope of the present claims, but does not expressly exemplify the use of both type of monomers as the ion-conducting monomers. The examiner is of the position that it would have been obvious to one having ordinary skill in the art to employ both vinylphosphonic acid and vinylsulfonic acid ion conducting monomers for the expected additive result in light of their having been disclosed as suitable ion conducting monomer alternatives by patentees. Absent evidence of unusual or unexpected results, no patentability can be seen in using a mixture of two ion conducting monomers wherein each is used for the same purpose by the patentees. Prior art further teaches an optimal interpenetration of the polymer substrate by the ion-conducting polymer to be in the range of 40-90% volume, and exemplifies percent sulfonation within those expressed in the present claims

(col. 18, lines 13-15; working examples). Once the in-situ polymerization of vinylsulfonic acid and vinylphosphonic acid in the presence of a polymer film substrate to form a composite SPEM is suggested, the determination of optimum or workable ranges of the respective components within prior art general conditions would involve only routine skill in the art.

Furthermore, the present claims are presented in a product-by-process format. Thus, the patentability of the claimed invention is determined based on the product itself, not the method of making it. It is well settled that if the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. In the instant case, applicant's method and reactants are substantially the same as those in prior art in-situ polymerization method. Accordingly, the same product is expected to be formed. In any event, even if the respective methods are different, when applicant's product and that of the prior art appear to be identical or substantially identical, the burden shifts to applicant to provide evidence that the respective products do in fact differ, and that prior art product does not necessarily or inherently possess the relied upon characteristics of applicant's claimed product.

Response to Arguments

Applicant's amendment and remarks filed on 8/17/09 have been fully considered. The crux of applicant's argument is the polymer substrate of Formato et al. is materially different from the recited polymer in step (a) because it is porous, and therefore, the composite membrane resulting from prior art method is different from the claimed membrane. The examiner respectfully disagrees and has fully considered the structure of the product implied by the process steps. The present claims are directed to a membrane produced by the steps of mixing a polymer with vinyl sulfonic acid and vinyl phosphonic acid monomers and subsequently polymerize the monomers in-situ to produce a membrane. This is in essence what prior art in-situ polymerization embodiment teaches. The argument with respect to the entire bulk of the recited polymer in step (a) being imbibed with monomer solution, as compared to prior art being limited to only the void regions is not persuasive because applicant's polymer as claimed is not only limited to a non-porous polymer as asserted, and thus, encompassing prior art polymer substrate having any degree of porosity. It is the claims, not arguments or conclusory statements, which defined applicant's invention, and as

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such the recited polymer in step (a) is indistinguishable from prior art polymer substrate. Accordingly, the examiner's position is maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen L. Pezzuto/
Primary Examiner
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hlp